Claims

1. A method for operating an internal combustion engine, in particular of a motor vehicle, in which the engine has a number of cylinders (Z1, Z2, Z3, Z4), in which in each of the cylinders (Z1, Z2, Z3, Z4) a movable piston is accommodated which is capable of passing through an intake phase (S), a compression phase (V), a working phase (A), and an expulsion phase (B), and in which the fuel can be injected directly into a combustion chamber defined by the cylinder (Z1, Z2, Z3, Z4) and the piston, characterized in that a first output signal (P1, P1S1) is generated, which changes its value whenever a transition from one phase to the next phase of the engine is taking place; that a second output signal (P2, P2S2) is generated, which always changes its value upon every other transition between two phases of the engine; that the two output signals (P1, P1S1; P2, P2S2) are generated independently of each other; and that from the two output signals, the present phase of at least one of the cylinders (Z1, Z2, Z3, Z4) is ascertained.

2. The method as defined by claim 1, characterized in that the two output signals (P1, P1S1; P2, P2S2) are generated by two sensors, especially two so-called true-power-on sensors.

3. The method as defined by claim 1 or 2, characterized in that the two sensors are each assigned one transducer wheel that is coupled to the engine.

4. The method as defined by claim 3, characterized in that the two transducer wheels are assigned to two camshafts of the engine, or that one of the two transducer wheels is assigned to a crankshaft and the other of the two transducer wheels is assigned to a camshaft.

5. The method as defined by one of claims 1 through 4, characterized in that two further output signals (P1S2, P2S2) are generated, whose AND operator characterizes the time or angle range in which a direct start appears possible.

6. The method as defined by one of claims 1 through 4, characterized in that

two further output signals (P1S2, P2S2) are generated, whose EXOR operator characterizes the time or angle range in which a direct start appears possible only under certain peripheral conditions.

7. A computer program for a control unit of an internal combustion engine, characterized in that it is programmed for use in a method as defined by one of claims 1 through 6.

8. A control unit for an internal combustion engine, in particular of a motor vehicle, in which the engine has a number of cylinders (Z1, Z2, Z3, Z4), in which in each of the cylinders (Z1, Z2, Z3, Z4) a movable piston is accommodated which is capable of passing through an intake phase (S), a compression phase (V), a working phase (A), and an expulsion phase (B), and in which the fuel can be injected directly into a combustion chamber defined by the cylinder (Z1, Z2, Z3, Z4) and the piston, characterized in that by means of the control unit, a first output signal (P1, P1S1) can be generated, which changes its value whenever a transition from one phase to the next phase of the engine is taking place; that by means of the control unit, a second output signal (P2, P2S2) can be generated, which always changes its value upon every other transition between two phases of the engine; that the two output signals (P1, P1S1; P2, P2S2) can be generated independently of each other; and that by means of the control unit from the two output signals, the present phase of at least one of the cylinders (Z1, Z2, Z3, Z4) can be ascertained.

9. An internal combustion engine, in particular for a motor vehicle, characterized in that a control unit as defined by claim 8 is provided.